

REMARKS

Claims 16-29 are currently pending in the application. By this amendment, claims 16, 24 and 28 are amended and claim 29 is added for the Examiner's consideration. The above amendments do not add new matter to the application and are fully supported by the specification. For example, support for the amendment to claim 24 is found at paragraph 0033 of the specification and support for new claim 29 can be found in pending claims 16 and 25. Reconsideration of the rejected claims in view of the above amendments and the following remarks is respectfully requested.

Claim Objection

Claims 24-26 were objected to on the basis of minor asserted informalities.

Applicants submit that the noted basis of objection has been addressed by the instant amendment of claim 24 and has therefore been rendered moot.

With regard to claim 24, Applicants have amended the terms asserted by the Examiner to be incorrect. Support for the amendment to claim 24 is found at paragraph 0033 of the specification.

Accordingly, Applicants respectfully request that the instant objection be withdrawn.

Section 112, 2nd Paragraph

Claim 28 was rejected as indefinite because it recites a feature that lacks proper antecedent basis in claim 1.

Applicants submit that the basis of rejection has been addressed by the instant amendment of the claims and has therefore been rendered moot. Support for the amendment to claim 28 can be found in paragraph [0048].

Accordingly, Applicants respectfully request that the instant rejection be withdrawn.

35 U.S.C. §102 Rejection

Claims 16-18 and 24-28 were rejected under 35 U.S.C. §102(b) for being anticipated by JP 4-343479 to IGARASHI et al. This rejection is respectfully traversed.

In order to establish a *prima facie* case of anticipation under 35 U.S.C. § 102, a single prior art reference must disclose each and every element as set forth in the subject claim. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). Applicants respectfully submit that a *prima facie* case of anticipation has not been established as the applied reference fails to teach each and every element of the claims.

More particularly, claim 16 recites, *inter alia*,

doping a lower region of the semiconductor substrate with a first dopant at a first energy level;
doping a middle region of the semiconductor substrate with a second dopant at a second energy level lower than the first energy level; and
doping an upper region of the semiconductor substrate with a third dopant at a third energy level lower than the second energy level.

Additionally, claim 24 recites, *inter alia*,

that the doping of the middle region has approximately less energy than the doping of the lower region and that the doping of the upper region has

approximately less energy than the doping of the middle region.

The Examiner is of the opinion that the features of the claimed invention are disclosed in IGARASHI and the discussion thereof in the English language abstract thereof. Applicants respectfully disagree and submit that all of the features of claims 16 and 24 have not been shown to be disclosed by IGARASHI.

In addition to the reasons already made of record, Applicants submit that IGARASHI does not disclose, or even suggest, the three recited doping steps, much less, that each of the three doping steps has less energy than the previous doping step. Nor has the Examiner shown otherwise, or even identified the specific locations in IGARASHI which allegedly disclose these features.

Applicants submit that the Examiner has failed to identify where in IGARASHI there is disclosed each and every features recited in at least claims 16 and 24. The Examiner has not even provided an English language translation of this document so as to properly support the Examiner's rejection. As such, the Examiner has failed to set forth a *prima facie* case of anticipation.

Applicants emphasize that IGARASHI has not been shown to disclose, or even suggest, the three recited doping steps, much less, that each of the three doping steps has approximately less energy than the previous doping step. Applicants note, in particular, that the Abstract of IGARASHI does not disclose any energy levels and the Examiner has not identified any language in IGARASHI which even remotely discloses these features.

Furthermore, the rejection of dependent claims 17, 18 and 25-28 is improper at least because these claims depend from claims 16 and 24, which are believed to be allowable over the applied art of record.

Accordingly, Applicants respectfully request that the rejection over claims 16-18 and 24-28 be withdrawn.

35 U.S.C. §103 Rejection

Claims 19-23 were rejected under 35 U.S.C. §103(a) for being unpatentable over IGARASHI in view of AAPA. This rejection is respectfully traversed.

While acknowledging that IGARASHI fails to disclose or suggest the features of these claims, the Examiner is of the opinion that the features of claims 19-23 are obvious in view of AAPA because the recited features are asserted to be conventional. Applicants respectfully disagree with the Examiner.

In addition to the reasons already made of record, Applicants submit that AAPA does not disclose, or even suggest, the three recited doping steps, much less, that each of the three doping steps has less energy than the previous doping step. Nor has the Examiner shown otherwise. Applicants note, in particular, that the language in the instant specification describing Fig. 1 explains that the subcollector 14 is doped with a 40 KeV energy level, that the collector 16 is doped with a 700 KeV energy level, and that the HA junction 24 is doped with a 40 KeV energy level. Such language is clearly not suggestive of the three doping steps having approximately less energy than the previous doping step.

Because, as noted above, IGARASHI does not disclose, or even suggest, the three recited doping steps, much less, that each of the three doping steps has less energy than the previous doping step, and because AAPA does not cure these deficiencies, Applicants submit that the Examiner has failed to set forth a *prima facie* case of unpatentability.

Applicants also direct the Examiner's attention to the guidelines identified in M.P.E.P section 2141 which state that

"[i]n determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification. *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972)."

As this section also clearly indicates,

"[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."

Moreover, it has been legally established that

"[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) Although a prior art device may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so. 916 F.2d at 682, 16 USPQ2d at 1432.). See

also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references)."

Additionally, it has been held that

"[a] statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references." *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

Applicants submit that there is no motivation to modify IGARASHI in view of AAPA or what is asserted to be known in the art in a manner which would render obvious Applicants' invention, and additionally, Applicants submit that there is no motivation or rationale disclosed or suggested in IGARASHI or AAPA to modify IGARASHI in the manner suggested by the Examiner. The Examiner's opinion does not provide a proper basis for these features or for the motivation to modify or combine these documents in the manner suggested by the Examiner. This is based, in part, on the fact that all of the features of the claimed invention are not even shown in the IGARASHI reference. Therefore, Applicants submit that the invention as recited in at least independent claims 16 and 24 is not rendered obvious by any reasonable inspection and interpretation of the disclosure of the IGARASHI reference in view of AAPA.

Accordingly, Applicants respectfully request that the rejection over claims 19-23

be withdrawn.

New Claim Is Also Allowable

Applicants submit that new claim 29 is allowable at least because it recites features similar to claim 16 which is believed to be allowable.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicants hereby make a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 09-0456.

Respectfully submitted,
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